SOLVAY
SODA ASH JOINT VENTURE

April 29, 1998

Lee Gribovicz
WDEQ-Air Quality Division
250 Lincoln
Lander, WY 82520

Dear Lee:

RE: AQD #s 17 and 48 Compliance Testing

Preliminary results of the compliance stack testing conducted on AQD #48 (CA-3) on March 31, 1998 are above the permit allowable rates for particulate and NO_X emissions. This letter is to inform you of the steps we have taken to bring AQD #48 into compliance and to document the testing schedule of AQD #s 17 and 48 as discussed with you previously.

Particulate:
The average of the three March 31 particulate test runs on AQD #48 was 9.97 PPH, with a permit limit of 9.3 PPH. The three runs were 13.8, 9.6, and 6.5 PPH, with the first run starting at 10:30 AM and the third at 15:13 PM on Tuesday March 31 (see attached preliminary results). As you can see, the first run was the highest, with particulate emissions decreasing through the day. One more run was completed on Friday April 3, with results of 6.4 PPH.

Mr. Don Larson of ESP Inspections Inc. was contacted concerning the test results. For many years, Mr. Larson has provided very useful insight into electrostatic precipitator (ESP) performance at Solvay Minerals. He was instrumental in helping reconfigure our ESPs after the conversion of CA-1 and CA-2 (AQD #17) from coal to gas-firing. Per Mr. Larson, the ESP may require 24 to 48 hours to stabilize after a change in operation. He explained that at different production rates (which are coupled with different airflow rates), dust is deposited in different areas of the ESP. Upon raising the production and airflow rates, this dust is re-entrained in the ESP, temporarily reducing the efficiency of the ESP. Furthermore, changes in production rates cause the off-gas temperature to fluctuate. The resistivity of dust particles is dependent on temperature, and so temperature changes may also temporarily reduce the efficiency of the ESP.

Solvay Soda Ash Joint Venture, Inc.
P.O. Box 1167, Green River, Wyoming 82935 307/875-6500 FAX: 307/872-6510

Unfortunately, due to inventory problems created by market conditions, the calciner (AQD #48) had not been at a constant production rate for 24 to 48 hours before the testing began. Adjustments were being made until early the morning of the test, probably causing the first two runs to be abnormally high in particulate emissions. It is believed that at maximum production rates, the unit normally emits about 6.5 PPH, as the third (3^{rd}) and fourth (4^{th}) runs showed. We have attempted to run the calciner at constant operating parameters for a minimum of 24 hours before re-testing this week.

NO_X:

The average of the three March 31 NO_X test runs on AQD #48 was 18.7 PPH (see attached preliminary results), with a permit limit of 15.0 PPH. Jim Condziela from North American Company, the manufacturer of the burner, met with us on Friday April 17, 1998. He was concerned about the accuracy of the airflow reading taken at the discharge of the combustion air fan (see attached picture #1). This measurement is used to operate the burner. Steve Cort of NELS Consulting Services Inc. of Ontario, Canada was on site Monday and Tuesday, April 20 and 21. It was found that the flow transmitter had failed, so inaccurate airflow readings were indeed being used to control the burner (see attached picture #2). A new, more reliable transmitter was installed last week (see attached picture #3).

The CA-3 combustion air preheater heat exchanger was inspected this week. A number of tubes were found to be broken, allowing the flue gas to recirculate into the combustion air. Broken tubes were replaced on Wednesday, April 22. (See attached pictures #4, #5, and #6.)

We believe that the inaccurate airflow and broken heat exchanger tubes may have caused an increase in NO_X emissions. The transmitter and heat exchanger will be inspected on a more frequent basis.

Test Schedule:

AQD #48 will be re-tested for NO_X, CO, and particulate on Tuesday and Wednesday, April 28 and 29, per Reference Methods 7, 10, and 5/202 respectively, without deviation. AQD #17 was tested on Wednesday and Thursday, April 22 and 23, for NO_X, CO, and particulate without deviation from the Reference Methods mentioned above. Preliminary results for NO_X on AQD #17 show compliance at about 21 PPH compared to the 30.0 PPH permit limit.

The compliance test reports will be forwarded to the Division when they are available.

VOC and HAP test data is available from previous testing, based on a pound of pollutant per ton of ore basis. Per our earlier conversation, further VOC

and HAP testing will be conducted on the calciner stacks in the future if requested by the Division.

If you have any questions, please contact me at (307) 872-6571.

Sincerely,

Dolly A. Potter
Environmental Engineer

Attachments

cc: Dan Olson

~~8250-5/202 R1-3~~
Preliminary Results

Production Rate is Estimated

Run No.	1	2	3	Average
				10:00
Date (1998)	March 31	March 31	March 31	17:00
Start Time (approx.)	10:30	13:00	15:13	
Stop Time (approx.)	11:48	14:17	16:31	
Process Conditions[1]				
Feed Rate (tons/hr)	185	185	185	185
Gas Conditions				
T_s Temperature (°F)	324	324	324	324
B_{wo} Moisture (volume %)	30.16	29.46	28.93	29.52
O_2 Oxygen (dry volume %)	11.3	11.3	11.4	11.3
CO_2 Carbon dioxide (dry volume %)	11.4	11.4	11.4	11.4
Volumetric Flow Rate				
Q_a Actual conditions (acfm)	195,600	200,000	199,100	198,200
Q_{std} Standard conditions (dscfm)	72,210	74,570	74,800	73,860
Front Half Particulate				
C Concentration (gr/dscf)	0.0074	0.0035	0.0030	0.0046
E Emission rate (lb/hr)	4.6	2.2	1.9	2.9
E Emission rate (lb/ton of trona)	0.0246	0.0119	0.0104	0.0156
Back Half Organic Particulate				
C Concentration (gr/dscf)	0.0607	0.0421	0.0356	0.0461
E Emission rate (lb/hr)	37.6	26.9	22.8	29.1
E Emission rate (lb/ton of trona)	0.2029	0.1456	0.1233	0.1573
Back Half Inorganic Particulate				
C Concentration (gr/dscf)	0.0150	0.0110	0.0071	0.0112
E Emission rate (lb/hr)	9.3	7.4	4.6	7.1
E Emission rate (lb/ton of trona)	0.0500	0.0399	0.0247	0.0382
Back Half Total Particulate				
C Concentration (gr/dscf)	0.0757	0.0537	0.0427	0.0574
E Emission rate (lb/hr)	46.8	34.3	27.4	36.2
E Emission rate (lb/ton of trona)	0.25	0.19	0.15	0.1955
Front and Back Half Inorganic Particulate				
C Concentration (gr/dscf)	0.0223	0.0150	0.0101	0.0158
E Emission rate (lb/hr)	13.8	9.8	6.5	9.97 → (9.3 permit)
E Emission rate (lb/ton of trona)	0.0747	0.0519	0.0351	0.0539

~~8250 5/202 R4~~
Preliminary Results

Production Rate is Estimated

Run No.		4
Date (1998)		April 2
Start Time (approx.)		13:00
Stop Time (approx.)		14:20
Process Conditions[1]		
	Feed Rate (tons/hr)	185
	Fuel flow (scfm)	2,980
Gas Conditions		
T_s	Temperature (°F)	336
B_{wo}	Moisture (volume %)	30.63
O_2	Oxygen (dry volume %)	11.3
CO_2	Carbon dioxide (dry volume %)	11.3
Volumetric Flow Rate		
Q_a	Actual conditions (acfm)	213,300
Q_{std}	Standard conditions (dscfm)	76,910
Front Half Particulate		
C	Concentration (gr/dscf)	0.0028
E	Emission rate (lb/hr)	1.9
E	Emission rate (lb/ton of trona)	0.0101
Back Half Organic Particulate		
C	Concentration (gr/dscf)	0.0269
E	Emission rate (lb/hr)	17.7
E	Emission rate (lb/ton of trona)	0.0956
Back Half Inorganic Particulate		
C	Concentration (gr/dscf)	0.0069
E	Emission rate (lb/hr)	4.6
E	Emission rate (lb/ton of trona)	0.0246
Back Half Total Particulate		
C	Concentration (gr/dscf)	0.0338
E	Emission rate (lb/hr)	22.3
E	Emission rate (lb/ton of trona)	0.12
Front and Back Half Inorganic Particulate		
C	Concentration (gr/dscf)	0.0097
E	Emission rate (lb/hr)	6.4
E	Emission rate (lb/ton of trona)	0.0347

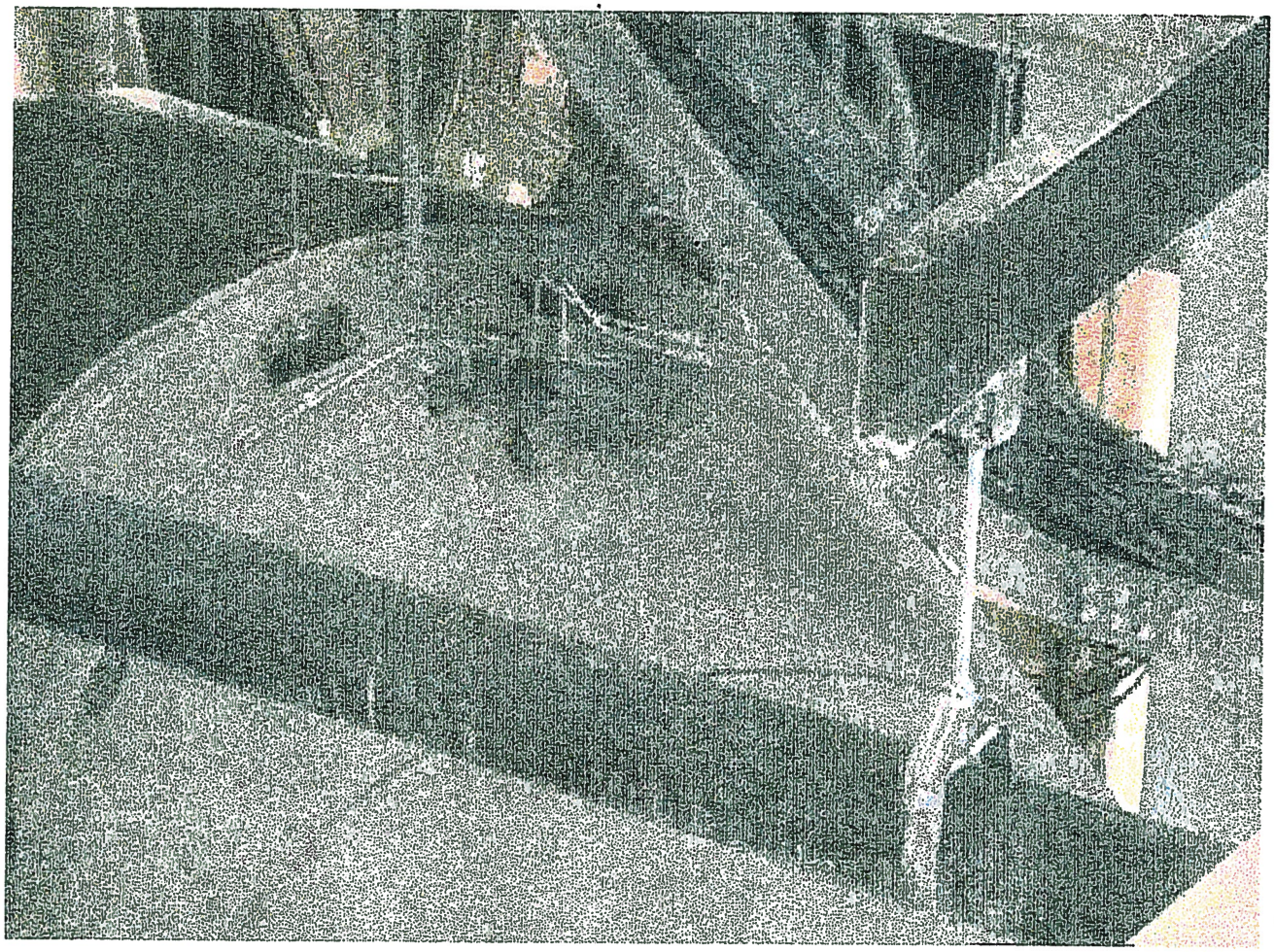
SOLVAY MINERALS, INC.
CAE Project No: 8250
CA-3
Field Parameter Sheet - Particulate

Preliminary Data

Preliminary Data

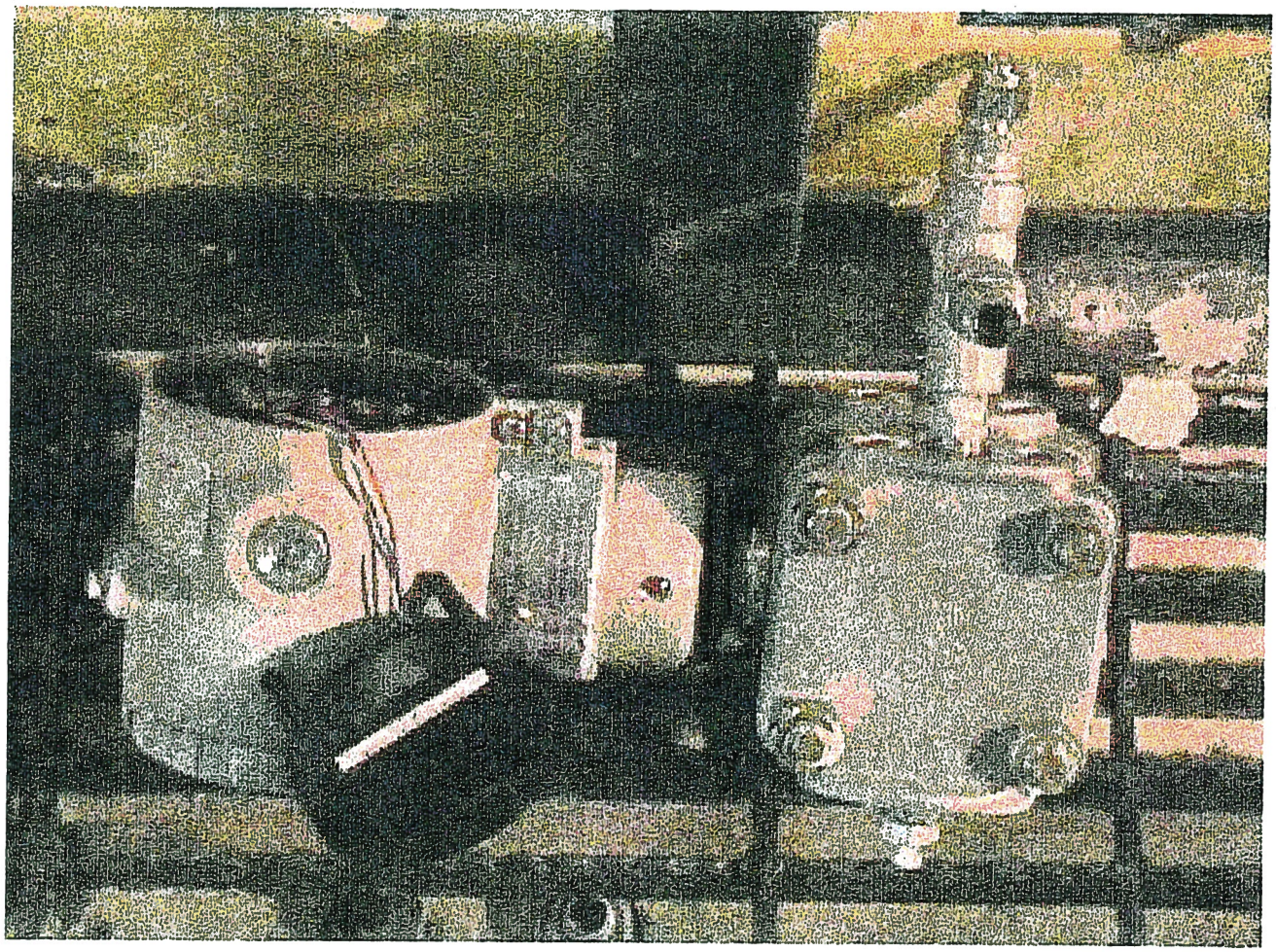
Run No.	1	2	3	Avg
Date	3/31/98	3/31/98	3/31/98	
Start Time (approx.)	10:30	13:00	15:13	
Stop Time (approx.)	11:48	14:17	16:31	
Meter Box No.	D-6	D-6	D-6	
Sampling Conditions				
Yd Dry gas meter correction factor	1.0007	1.0007	1.0007	
Cp Pitot tube coefficient	0.84	0.84	0.84	
Pg Static pressure (in. H2O)	-0.2	-0.2	-0.2	-0.2
As Sample Location area (sq. ft.)	85.90	85.90	85.90	
Pb Barometric pressure (in. Hg)	23.50	23.50	23.50	
Dn Nozzle diameter (in.)	0.311	0.311	0.311	
O2 Oxygen (dry volume %)	11.6	11.6	11.6	11.6
CO2 Carbon dioxide (dry volume %)	11.4	11.5	11.5	11.5
Vlc Volume of liquid collected (ml)	293.0	293.1	284.3	
Vm Volumed metered (cu. ft.)	39.68	41.28	41.22	
tm Dry gas meter temp. (deg F)	57	60	62	60
ts Sample gas temp. (deg F)	324	324	324	324
ΔH Meter box orifice pr. dr. (in. H2O)	0.79	0.84	0.85	
ø Total sample time (min)	72.0	72.0	72.0	
Flow Results				
Vwstd Volume of water vapor (scf)	13.79	13.80	13.38	13.66
Vmstd Volume of gas metered (dscf)	31.92	33.02	32.84	32.59
Ps Sample gas pres., abs. (in. Hg)	23.49	23.49	23.49	23.49
Pv Water vapor pres., abs. (in. Hg)	NA	NA	NA	
Bwo Moisture in sample (by vol.)	0.3017	0.2947	0.2895	0.2953
Bws Saturated moisture (by vol.)	1.000	1.000	1.000	
ΔP Velocity head (sqrt in. H2O)	0.472	0.483	0.481	0.479
Md MW of sample gas, dry (lb/lb-mole)	30.28	30.30	30.30	30.30
Ms MW of sample gas, wet (lb/lb-mole)	26.58	26.68	26.74	26.67
Vs Velocity of sample gas (ft/sec)	38.0	38.8	38.6	38.5
I Isokinetic Variation (%)	100.0	100.2	99.4	99.9
Qa Volumetric flow rate (acfm)	195,662	199,972	199,071	198,200
Qstd Volumetric flow rate (dscfm)	72,196	74,528	74,741	73,820
				1
NOX,ppm	36.2	34.5	35.4	
lb/hr	18.72	18.42	18.95	18.7

Solvay Minerals, Inc.
Pitot Tubes on CA-3 Burner Inlet Duct



#1

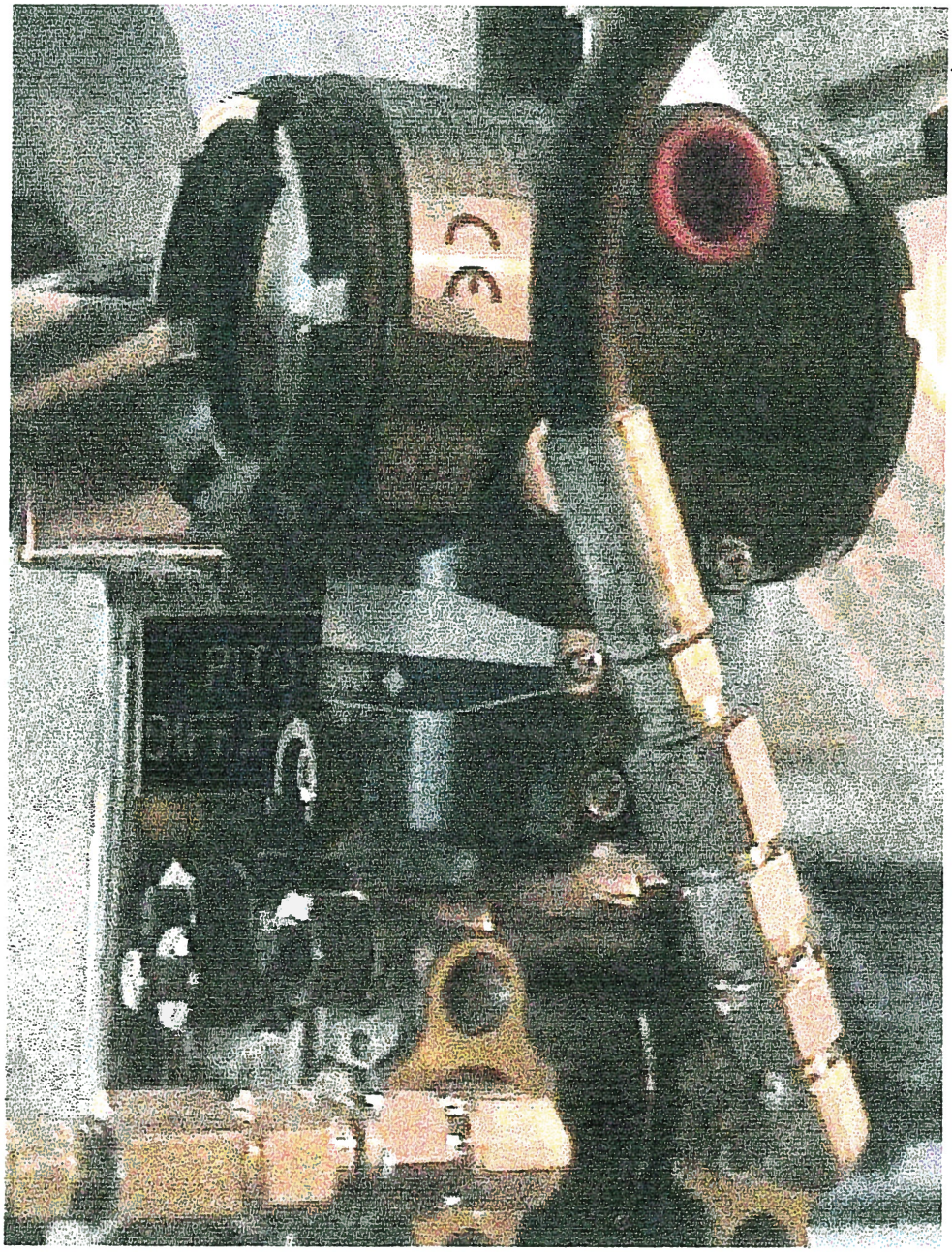
Solvay Minerals, Inc.
Failed Honeywell Transmitter



#2

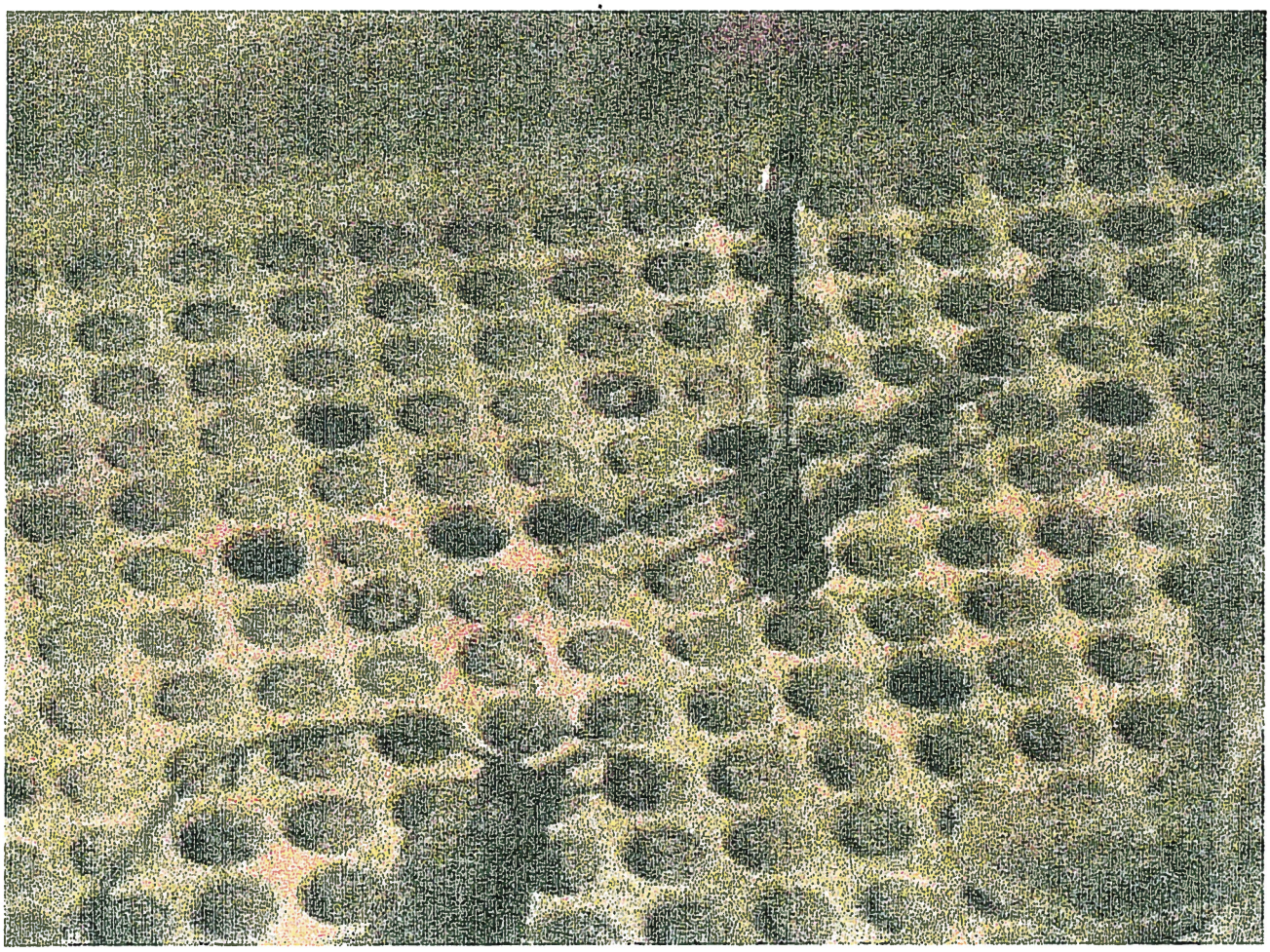
Solvay Minerals, Inc.

New Transmitter



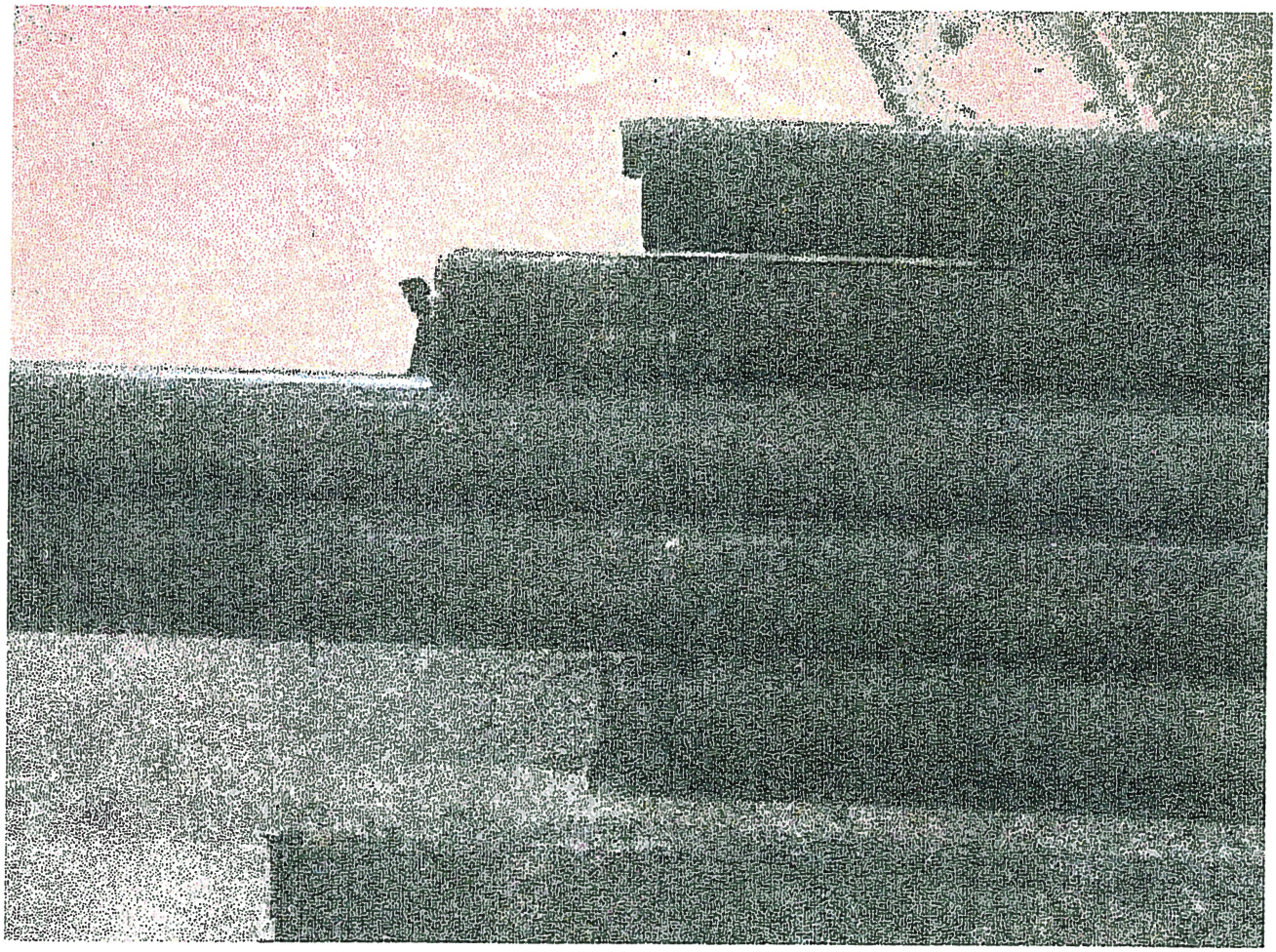
#3

Solvay Minerals, Inc.
Tubes of CA-3 Air Preheater



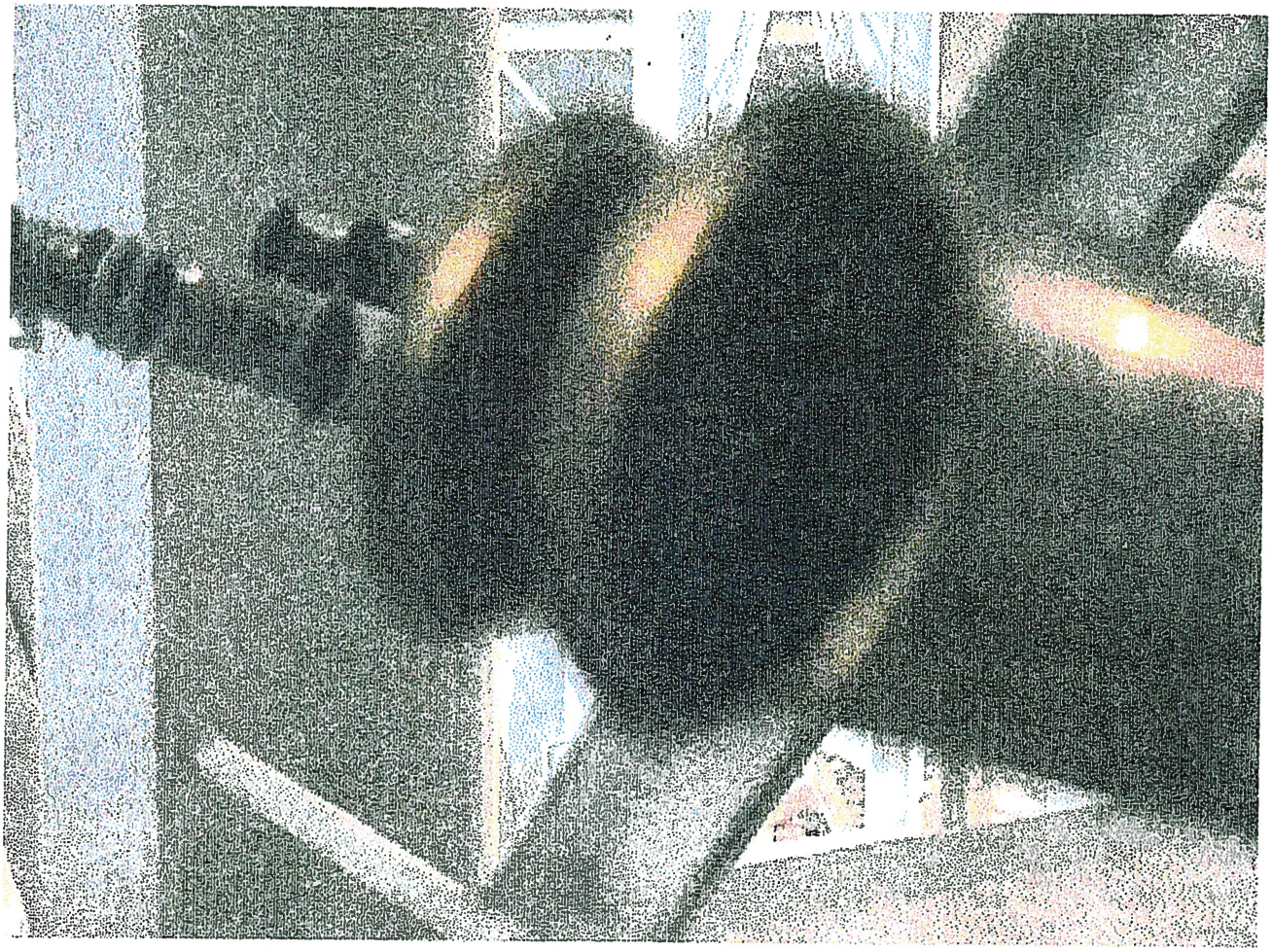
#4

Solvay Minerals, Inc.
Broken Tubes from Preheater



#5

Solvay Minerals, Inc.
New Tubes For Preheater



#6